

WHAT IS CLAIMED IS:

1. A moving/guiding apparatus comprising:

first and second movable bodies guided to move in intersecting directions, arranged at vertically

5 different positions, and restrained in a vertical direction;

first and second actuators for driving said first and second movable bodies in the intersecting directions; and

10 a third movable body guided to be movable on a surface plate in a moving direction of said first movable body and in a moving direction of said second movable body, and driven in two intersecting directions upon reception of forces from guide surfaces in a
15 horizontal direction of said first and second movable bodies.

2. The apparatus according to claim 1, wherein

the apparatus further comprises a vacuum container for accommodating said first, second, and third movable
20 bodies, and

said first and second actuators are set outside said vacuum container.

3. The apparatus according to claim 1, further comprising

25 first and second bearings for guiding one side of said first movable body and one side of said second movable body, respectively, and restraining said first

and second movable bodies at least in vertical and horizontal directions, and

third and fourth bearings for guiding the other side of said first movable body and the other side of said second movable body, respectively, and restraining
5 said first and second movable bodies at least in the vertical direction.

4. The apparatus according to claim 3, wherein said first and second bearings are radial bearings.

10 5. The apparatus according to claim 1, further comprising a static pressure bearing for guiding said first, second, and third movable bodies.

6. The apparatus according to claim 1, wherein said first and second actuators are ultrasonic linear motors.

15 7. The apparatus according to claim 2, comprising a rigid body for transmitting driving forces from said first and second actuators to said first and second movable bodies, and

a seal for sealing said rigid body and said vacuum
20 container with a labyrinth seal structure.

8. The apparatus according to claim 1, wherein said first actuator includes a pair of linear motors for transmitting driving forces to two sides of said first movable body, and

25 said second actuator includes a pair of linear motors for transmitting driving forces to two sides of said second movable body.

9. A moving/guiding method for a moving/guiding apparatus having first and second movable bodies guided to move in intersecting directions, arranged at vertically different positions, and restrained in a vertical direction, and a third movable body guided to be movable on a surface plate in a moving direction of the first movable body and in a moving direction of the second movable body, comprising the steps of
- driving the first and second movable bodies by respective actuators in directions the first and second movable bodies are guided, and
- driving the third movable body in two intersecting directions by forces from guide surfaces in a horizontal direction of the first and second movable bodies.
10. The method according to claim 9, wherein the first, second, and third movable bodies are accommodated in a vacuum container, and the actuators are set outside the vacuum container.
11. The method according to claim 9, wherein one side of the first movable body and one side of the second movable body are guided by a bearing retraining movement at least in vertical and horizontal directions, and
- the other side of the first movable body and the other side of the second movable body are guided by a bearing retraining movement at least in the vertical direction.

12. The method according to claim 9, wherein the first, second, and third movable bodies are guided by a static pressure bearing.
13. The method according to claim 9, wherein the first, second, and third movable bodies are guided by a static pressure bearing.
14. The method according to claim 9, wherein the actuators use ultrasonic linear motors.
15. The method according to claim 10, wherein forces from the actuators to the first and second movable bodies are transmitted through a rigid body, and the rigid body and the vacuum container are sealed with a labyrinth seal structure.
16. The method according to claim 9, wherein driving forces are transmitted to two sides of the first movable body by a pair of linear motors, and driving forces are transmitted to two sides of the second movable body by another pair of linear motors.
17. A device manufactured by using the moving/guiding apparatus according to claim 1.
18. A device manufactured by using the moving/guiding method according to claim 9.
19. An exposure apparatus using the moving/guiding apparatus according to claim 1.
20. A semiconductor device manufacturing method comprising the steps of:
setting a group of manufacturing apparatuses for

respective types of processes including the exposure apparatus according to claim 19 at a semiconductor manufacturing factory; and

manufacturing a semiconductor device in accordance
5 with a plurality of processes by using the group of manufacturing apparatuses.

21. The method according to claim 20, further comprising the steps of

connecting the group of manufacturing apparatuses
10 to each other through a local area network, and data-communicating information on at least one of the group of manufacturing apparatuses between the local area network and an external network outside the semiconductor manufacturing factory.

22. The method according to claim 21, wherein
15 maintenance information on the manufacturing apparatuses is obtained through data communication by accessing a database provided by a vender or user of the exposure apparatus through the external network, or production
20 management is performed by data communication with another semiconductor manufacturing factory different from the semiconductor manufacturing factory through the external network.

23. A semiconductor manufacturing factory comprising
25 a group of manufacturing apparatuses for respective types of processes including the exposure apparatus according to claim 19, and

a local area network for connecting the group of manufacturing apparatuses, and a gateway for enabling access to an external network outside the factory from the local area network,

5 wherein data communication of information on at least one of the group of manufacturing apparatuses is enabled.

24. A maintenance method for the exposure apparatus according to claim 19 which is set on a semiconductor
10 manufacturing factory, comprising the steps of:

 providing, by a vender or user of the exposure apparatus, a maintenance database connected to an external network outside the semiconductor manufacturing factory;

15 allowing access to the maintenance database from inside the semiconductor manufacturing factory through the external network; and

 transmitting maintenance information accumulated in the maintenance database to the semiconductor
20 manufacturing factory through the external network.

25. The exposure apparatus according to claim 19, wherein

 the exposure apparatus further comprises a display, a network interface, and a computer for performing
25 network software, and

 data communication of maintenance information on the exposure apparatus through a computer network is

enabled.

26. The exposure apparatus according to claim 25,
wherein

the network software provides a user interface for
5 accessing a maintenance database, connected to an
external network outside a factory where the exposure
apparatus is set and provided by a vender or user of the
exposure apparatus, on the display, so information can
be obtained from the database through the external
10 network.